

PRE-APPEAL BRIEF REQUEST FOR REVIEW
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:)	
)	Examiner: Dipakkumar B. Gandhi
Lars Johan Persson et al.)	
)	Art Unit: 2138
Application No: 09/817,731)	
)	
Filed: March 26, 2001)	
)	
For: METHOD AND APPARATUS FOR)	
INCREASING THE EFFECTIVE)	
RANGE OF A COMMUNICATION)	
LINK IN A WIRELESS)	
COMMUNICATION SYSTEM)	
_____)	

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Commissioner for Patents
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In response to the Final Office Action mailed March 2, 2007, and in conjunction with the Notice of Appeal filed concurrently herewith, Applicants respectfully request review of the Final rejection of the claims of the above referenced application in view of the following.

REMARKS

Claims 41-71 are pending in the above-referenced patent application, of which claims 41, 42, 55, 58, and 67 are independent claims. These independent claims are the main subject of this Request. The independent claims were finally rejected in the Final Office Action of March 2, 2007, under 35 U.S.C. § 103 as being unpatentable under Lundby (USPN 6,356,528) in view of Anvari (USPN 5,461,646) and Tsujimoto (USPN 5,369,412). The dependent claims were rejected based on combinations of these references with numerous other references, none of which cures the deficiencies of these references as applied to Applicants' claims. Thus, the remarks herein will focus on the application of these references to the independent claims.

Applicants first refer to the Response filed December 12, 2006, which includes all the arguments raised below, but in greater detail than can be provided under the page constraints of this Request. As an overview, Applicants have previously pointed out that the cited references refer to static diversity schemes, in contrast to Applicants' claims, which recite limitations directed to introducing additional diversity in a communication link that already has diversity. Additionally, the Office Actions have never fully rejected claim 41, contrary to the requirements of MPEP § 2143. More specifics follow.

Regarding the incomplete rejection of claim 41, the claim recites "determining that an effective signal strength of a signal ... using signal diversity ... is insufficient to provide a desired communication range...." The Office Actions fail to point to anything in the cited references that is purported to disclose determining that an effective signal strength of a signal using diversity is insufficient to provide a desired communication range. Rather, the cited references make vague reference to the benefits of using signal diversity as being that diversity mitigates fading and mutual interference between signals (see Lundby at col. 3, lines 21 to 30; Anvari at col. 2, lines 45 to 50), and fail to disclose or suggest determining that an effective signal strength on a wireless communication link that is already using diversity is insufficient to provide a desired communication range. At least one element of the claimed invention has not been rejected, and so the Office Actions fail to provide a prima facie case of obviousness, as per MPEP § 2143. Thus, Applicants respectfully request that the rejection of this claim be withdrawn.

Regarding the point of static diversity schemes in the cited references, Applicants note that both Lundby and Anvari suggest various types of diversity. However, the diversity schemes in the cited references are **fixed**. That is, once a channel is established, the amount and the type

of diversity do not change. The Office Actions have failed to point to anything that would suggest otherwise. Applicants have made arguments directed to such deficiencies of the references in previous Responses. In response to Applicants' arguments, the Final Office Action at page 3 states: "Lundby et al. teach that methods for introducing diversity into a transmitted signal are almost limitless by their very nature," quoting from Lundby. Applicants note that this is a very general statement from the reference, which is nowhere backed up by specific citation or reasoning to suggest to one of skill in the art Applicants' claimed invention, which includes introducing additional diversity in response to the determining [that the effective signal strength of the signal is insufficient to provide the desired communication range], as in claim 41 (and similar to claim 58), and dynamically introducing additional diversity on a wireless communication link already having diversity, as in claims 42 and 55 (and similar to claim 67). Thus, the Office Action fails to carry its burden of showing where each and every limitation of the claimed invention can be found in the cited references, per MPEP § 2143. Applicants again submit that the references fail to support a rejection of at least these cited features of the claimed invention.

Throughout Lundby and Anvari, the references assume that the same diversity scheme is always employed on a link once a connection is established. Thus, although the references suggest that diversity may be used in a communication link, and that multiple diversity methods may be employed on the same link, neither reference independently, nor the combination of references suggests **introducing additional diversity**, as recited in Applicants' claims. The Office Actions fail to point to anything in the cited references, or provide any reasoning to suggest that the diversity schemes in Lundby are not fixed, or show anything that would suggest dynamically altering or changing the diversity schemes of the cited references. Applicants submit that such an argument cannot be made because no support for it exists in the references.

As previously argued, Applicants observe that Lundby at col. 3, lines 35 to 41 uses the expression "introducing diversity into a transmitted signal." In contrast to what is claimed feature of introducing additional diversity on a link that already has diversity, the cited portion of the reference refers to processing a signal for transmission (and thus applies to preparation of a signal, not to diversity on a link). Per Lundby, a signal is generated, and then processed for transmission, which includes processing the signal according to the (fixed) diversity scheme being used on the link on which the signal will be transmitted. Thus, diversity is "introduced"

into the raw signal when processed according to the diversity scheme fixed for the link. However, nowhere does the Lundby reference, nor the other cited references, suggest that signals are transmitted with a particular diversity scheme, which scheme is then changed to introduce additional diversity into signals to be transmitted on the link. In contrast to the cited references, claim 41 refers to introducing diversity in response to determining a signal is degraded, and claim 42 refers to providing a signal with a diversity level, and dynamically introducing additional diversity. Both claims recite "introducing" diversity into a signal that has a level of diversity, which may be referred to as a diversity scheme. An existing diversity scheme is dynamically changed. The remaining independent claims recite similar limitations. In contrast to Applicants' claims, the references simply suggest implementing a diversity scheme. Thus, the references fail to disclose or suggest at least one element of the claimed invention, and so fail to render obvious the invention as recited in the independent claims.

Tsujimoto is not cited as curing the deficiencies pointed out above, and indeed fails to cure the deficiencies of Lundby and Anvari. As with the other references, Tsujimoto fails to disclose or suggest at least the feature of introducing additional diversity on a communication link that has diversity, as in Applicants' independent claims. Whether alone or in combination, the references fail to disclose or suggest at least one element of the claimed invention, and so fail to support an obviousness rejection of the independent claims under MPEP § 2143.

Therefore, Applicants submit that the rejection as set forth in the Office Actions is improper. Applicants respectfully request that the rejection be withdrawn and the claims allowed.

Respectfully submitted,
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